

CLAIMS

What is claimed is:

- 5 1. An information processing system, clustered by a plurality of information processing devices, wherein:

at least one of the information processing devices comprising:

metric information management means for storing metric information in an updateable manner, said metric information representing processing metric of a part or whole
10 of other information processing devices excluding the information processing device itself;

load measurement means for measuring the magnitude of the load of information processing requested;

determination means for determining at least one available device by comparing the magnitude of the load measured by the load measurement means and the metric information
15 stored in said metric information management means, said at least one available device being such that a part or whole of said information processing requested can be distributed and executed; and

task assignment means for assigning a task to the available device determined by said determination means.

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2. The information processing system according to claim 1, wherein said metric information management means includes:

first list management means for acquiring first metric information representative of static processing metric of said other information processing devices to determine at least one
25 available device, and storing a first list in a predetermined memory area, said first list being such that the available devices determined are listed; and

second management means for measuring second metric information representative of dynamic processing metric of the available devices listed in said first list, creating a second list such that the second metric information measured is classified and listed per

processing metric, sorting the available devices having the second metric information listed in the second list according to the task execution condition to determine at least one available device suitable for each task execution condition, and storing an index list, in which the determined at least one available device is listed, in a predetermined memory area;

5 wherein the second metric information of the available devices listed in the index list is read from said memory area and supplied as said metric information to said determination means.

3. The information processing system according to claim 2, wherein:

10 said first list management means uses, as said first metric information, configuration information of the program execution means provided by individual information processing devices and information representative of the type of program that can be executed by said program execution means, and compares said first metric information regarding a plurality of information processing devices, thereby determining the listing order in said first list.

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4. The information processing system according to claim 2, wherein:

 said second list management means sends a processing request to the available device listed in said first list, and receives a response result corresponding to the processing request, thereby acquiring said second metric information of that available device.

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5. The information processing system according to claim 4, wherein:

 said second list management means weights said second metric information with a coefficient value that is preset according to the type of processing metric, thereby creating said second list per processing metric.

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6. The information processing system according to claim 1, wherein said metric information management means includes:

 first list management means for acquiring first metric information representative of static processing metric of said other information processing devices, determining at least one

available device, and storing a first list, in which the determined at least one available device is listed, in a predetermined memory area; and

second list management means for measuring second metric information representative of dynamic processing metric of the available devices listed in said first list, and weighting the second metric information measured with a coefficient value that is preset according to each of a plurality of task execution conditions, thereby storing a second list in a predetermined memory area, said second list being such that available devices having second metric information that differs depending upon task execution conditions are listed;

wherein the second metric information of the devices listed in the second list is read from said memory area and supplied as said metric information to said determination means.

7. The information processing system according to claim 2, wherein:

said second list management means updates said created second list and said index list more frequently than said first list.

8. The information processing system according to claim 4, wherein:

said plurality of information processing devices are interconnected via a network, and said second list management means sends said processing request via said network, and receives a response result corresponding to the processing request via said network.

9. The information processing system according to claim 3, wherein at least one of said plurality of information processing devices is configured so that:

said program execution means is partitioned into a plurality of clusters; and the operating status of each cluster can be notified to other information processing devices.

10. The information processing system according to claim 9, wherein:

at least one of said plurality of information processing devices notifies said other information processing devices of the number of available clusters to be used by the other

information processing device as said operating status.

11. An information processing device for executing information processing such that the magnitude of its load is unpredictable, said information processing device comprising:

5 program execution means is partitioned into a plurality of clusters;

metric information management means for storing metric information in an updateable manner, said metric information representing processing metric of each of the clusters of said program execution means;

10 load measurement means for measuring the magnitude of the load of the information processing requested;

determination means for determining at least one available device by comparing the magnitude of the load measured by said load measurement means and the metric information stored in said metric information management means, said at least one available cluster being such that said information processing requested can be distributed and executed;

15 task assignment means for assigning a part of said information processing requested to each of said plurality of clusters determined by said determination means; and

output means for combining execution results and outputting the combined results from the respective clusters assigned by said task assignment means.

20 12. The information processing device according to claim 11, further comprising:

processing request execution means for executing required information processing corresponding to a processing request issued by another information processing device, and returning the execution result thereof, together with a transmission start time, to said another information processing device; and

25 notification means for notifying the metric information stored in said metric information management means to other information processing devices.

13. The information processing device according to claim 11, wherein:

each of said plurality of clusters further comprises a processor.

14. A distributed information processing method, wherein:

each of a plurality of information processing devices interconnected via a network measures processing metric of other information processing devices through the network, and
5 mutually stores metric information representative of the measured processing metric in a predetermined memory area in an updateable manner, and a part of resources of a program execution means of the information processing devices itself being available for use in another information processing device in response to a processing request, and

at each of the information processing devices, when a request occurs for information
10 processing such that the magnitude of load is unpredictable, the information processing device where a request for such information processing has occurred executes the processes of:

measuring the magnitude of the load of said information processing; comparing the magnitude of the load measured and the metric information stored in said memory area to
15 determine at least one available device where said requested information processing can be distributed and executed; assigning a part of said requested information processing to the available device(s) determined; combining the execution results of the assigned devices; and outputting the combined execution results.

20 15. A computer program, which causes an information processing device connected to a plurality of other information processing devices via a network to execute the processes of:

measuring processing metric of other information processing devices through said network;

storing metric information representative of the measured processing metric of the
25 other information processing devices in a predetermined memory area in an updateable manner;

when a certain request for information processing such that the magnitude of load is unpredictable occurs, measuring the magnitude of the load of such information processing;

comparing the magnitude of the load measured and the metric information stored in

said memory area to determine at least one available device such that said requested information processing can be distributed to the available device and executed in the available device;

5 assigning a part of said requested information processing to the available devices determined; and

 combining the execution results of the assigned available device and outputting the combined results.